

Amendments to the Claims

The "Listing of Claims" replaces all prior versions of claims in the application.

Listing of Claims:

1-18. (Cancelled).

19. (Currently Amended) A method for non-invasive, *in vivo* determination of the conductivity of nerves in a region of skin, said method comprising:

~~(a) providing a facial skin substrate to be analyzed;~~

~~(b) detecting the electrical signals from the nerves in the region of the first measuring point by applying a first non-invasive electrode to a the first measuring point of the a facial skin substrate prior to topical application of a compound for detecting the electrical signals from the nerves in the region of the first measuring point;~~

~~(b) (c) applying a second non-invasive electrode to a second measuring point of the facial skin substrate for detecting the electrical signals from the nerves in the region of the a second measuring point by applying a second non-invasive electrode to a second measuring point after topical application of a compound on the skin substrate;~~

~~(c) (d) subjecting the facial skin substrate to stimulation *in vivo* prior to and after topical application of a compound on a skin substrate; and~~

~~(d) (e) recording the electrical signals detected by the first and second non-invasive electrodes; and~~

~~(e) (f) analyzing the electrical signals for determining the conductivity of the nerves in the region of the first and second measuring points by analyzing the electrical signals detected prior to topical application of a compound and stimulation, and after topical application of a compound and stimulation with an evaluation circuit, the evaluation circuit comprising at least one amplifying element, at least one processing~~

element, and at least one microprocessor including at least one recording element, and a display; and

(f) determining the reactivity and/or hypersensitivity of the skin substrate based on the analyzed signals.

20. (Previously Presented) The method according to claim 19, wherein the stimulation comprises electrical stimulation.

21. (Previously Presented) The method according to claim 20, wherein the electrical stimulation is provided by a stimulation circuit comprising at least two stimulation electrodes in contact with an area of the facial skin substrate subject to the stimulation and an electrical stimulator connected to the microprocessor.

22. (Currently Amended) The method according to claim 19, wherein the skin substrate is facial skin ~~substrate subjected to stimulation~~ which is further subjected to a stress and the electrical signals detected by the first and second non-invasive electrodes with the stress is compared to the electrical signals detected by the first and second non-invasive electrodes without the stress.

23. (Cancelled).

24. (Previously Presented) The method according to claim 19, wherein the first non-invasive electrode is positioned such that it is capable of transmitting signals representative of the electrical activity of at least one branch of a facial trigeminal nerve selected from the group consisting of an ophthalmic branch, a maxillary branch, a mandibular branch and combination thereof.

25. (Previously Presented) The method according to claim 24, wherein the at least one branch comprises the maxillary branch.

26. (Currently Amended) The method according to claim 19, further comprising applying a weak alternating current to the first non-invasive electrode and measuring the impedance of the facial skin substrate.

27. (Currently Amended) An apparatus for non-invasive, *in vivo* determination of the conductivity of nerves in a region of skin, said apparatus comprising:

(a) at least one non-invasive measuring electrode suited for detecting electrical signals from the nerves in the region of the first measuring point, before the topical application of a compound representative of the electrical conductivity of a sensory nerve of a facial on a skin substrate *in vivo*;

(b) an electronic stimulator connected to at least one stimulation electrode for applying electrical stimulation to the skin substrate before and after the topical application of a compound;

(c) at least one reference electrode for detecting electrical signals from the nerves in the region of a second measuring point of the skin substrate after the topical application of a compound;

(d) a circuit connected to the at least one non-invasive measuring electrode, the electronic stimulator, and the at least one reference electrode for which determines the conductivity of the nerves in the region of the first and second measuring points by analyzing the electrical evaluating signals detected by said electrodes prior to topical application of a compound and electrical stimulation, and after topical application of a compound and electrical stimulation, the circuit comprising at least one amplifying element, at least one processing element, and at least one microprocessor that

includes at least one recording element, and a display, wherein a curve representative of differentials in the signals detected by the at least one non-invasive measuring electrode before and after a stimulation, as a function of time, showing the reactivity and/or hypersensitivity of the skin substrate based on the analyzed signals is created and displayed.

28. (Previously Presented) The apparatus according to claim 27, wherein the at least one non-invasive measuring electrode is non-polarizable or weakly polarizable.

29. (Previously Presented) The apparatus according to claim 27, wherein the at least one non-invasive measuring electrode comprises a material selected from the group consisting of stainless steel, tungsten, noble metals and mixtures thereof.

30. (Previously Presented) The apparatus according to claim 27, further comprising an adaptable holder and an adjustable arm having a first end and a second end, wherein the first end is connected to the adaptable holder, and wherein the at least one non-invasive measuring electrode is connected to the second end.

31. (Currently Amended) The apparatus according to claim 27, comprising at least two non-invasive measuring electrodes, wherein at least one non-invasive measuring electrode is capable of measuring impedance of the facial skin substrate.

32. (Previously Presented) The apparatus according to claim 31, further comprising at least one adjustable voltage generator associated with at least one transmitting aerial erected in proximity to the at least one non-invasive measuring electrode capable of measuring impedance.

33. (Previously Presented) The apparatus according to claim 27, wherein the at least one amplifying element comprises at least one preamplifier having a high input impedance over a voltage range of from -3 to +3 volts.

34. (Previously Presented) The apparatus according to claim 33, wherein the at least one preamplifier is connected directly to the at least one reference electrode.

35. (Previously Presented) The apparatus according to claim 33, wherein the at least one preamplifier is connected directly to the non-invasive measuring electrode.

36. (Previously Presented) The apparatus according to claim 33, wherein the at least one preamplifier is connected to the non-invasive measuring electrode by a shielded cable.

37. (Previously Presented) The apparatus according to claim 36, wherein the shielded cable comprises a shield connected to an output of the at least one amplifying element.

38. (Previously Presented) The apparatus according to claim 27, wherein the at least one processing element comprises an analog/digital converter.